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THE OCCURRENCE OF *MUSTELUS LUNULATUS* ON THE CALIFORNIA COAST

In 1920-1921 the writer spent six months in the vicinity of San Diego, Cal., collecting elasmobranch material for some anatomical studies. Among the first forms collected was one that local collectors included in the species of *Mustelus californicus,* but whose large size and other less striking but more definite characters led the writer finally to consider it *M.lunulatus* Jordan and Gilbert a species not hitherto reported on our California coast. Jordan and Evermann (Fishes of North America, Bull. 47, U. S. Nat. Mus., 1898) give the distribution of this species as "west coast of Mexico, common in Gulf of California." A specimen was sent to Professor E. C. Starks of Stanford University, from whom a recent communication states, "there is no doubt but that the specimen you sent me is *Mustelus lunulatus.*" In the time spent at San Diego the writer saw probably at least one hundred individuals of this species. Shark fishermen not infrequently brought in ten to twenty specimens in a day. Apparently they were taken mostly in San Diego Bay, and chiefly in nets. Jordan and Evermann give the size of this species as twenty inches in length. Nine individuals measured by the writer ranged from five feet four inches to five feet eight and one-half inches in length. Shark fishermen report this the most troublesome shark to

handle. When taken in a net it winds itself up so tightly and intricately that it is with difficulty extricated. Nearly always it suffocates itself in so doing as the gillslits are tightly closed by the net. Embryos of this species were very abundant in the autumn months.—H. W. Norris, *Grinnell College, Iowa.*

CERTAIN FISHES FROM SANDY HOOK BAY

The following list of fishes is given as an addition to "The fishes of Sandy Hook Bay"* and brings the total number of species definitely recorded from this body of water to ninty-five. These notes were made incidental to the work of collecting specimens for the New York Aquarium during 1922. While all five of the species mentioned below might well be expected to be found in this inlet they are enumerated here since it is obviously desirable to have a definite record of their occurrence.

Petromyzon marinus Linn.—A single specimen 17 cm. in total length was taken from a pound net on May 11. The following color notes were made from the living animal: Plumbeous silvery above, white below. Iris the color of "white gold." Tip of caudal black, teeth yellow. The eye was well developed and externally, at least, the characters were those of the adult. The difference in color was considerable however, as breeding adults taken in Swimming River a month earlier were blotched with bluish black on a yellowish tan ground above, as is usual with this species. While this is the first record we have, large numbers must pass through the Bay every spring as many of the streams emptying into it serve as breeding grounds, great numbers frequently aggregating at dams.

Raja diaphanes Mitchill—One specimen about one meter in total length was taken on May 11. It was a female with ova ranging up to a walnut in size. Two slightly smaller ones were taken on October 23.

*Zoologica, Vol. II, No. 15. C. M. Breder, Jr.

Pomolobus mediocris (Mitchill)—One specimen seen on August 29, 19 cm, in standard length; another of 14.8 cm. on September 21. This species is, no doubt, fairly common but as detailed examination of all the catches is impossible it likely was sometimes overlooked, since it so closely resembles other common Clupeids superficially.

Gasterosteus bispinosus Walbaum—A spent female of 40 mm. in standard length and a number of young which followed her were scooped up in the "Horseshoe" over a depth of about eight feet, fully an eighth of a mile from the nearest clump of *Zostera* on June 7. The young fishes (39 of which were taken by the single dip of the net which entrapped the older one) ranged from 14 to 17.5 mm. in standard length and displayed a modal length of 16. The possibility of parental care on the part of the female was thus forcibly suggested. This is the first record of the Two-spined Stickleback from Monmouth County.

Trachinotus falcatus (Linn.) — Three examples about 24 mm. in standard length were taken on October 4 among the sea weed and débris close to shore in the "Horseshoe." They were a smooth velvety black and the fins were hyaline. Two of these were kept in the Aquarium for a few weeks and lost this pigmentation becoming a silvery color similar to the young of *T.carolinus*. The iris in life was a deep ruby red.—C. M. Breder, Jr., *New York Aquarium*.

NORTH CAROLINA HERPETOLOGY

Corrections. In my article in Copeia No. 107 there are some points needing correction. First as to the *Plethodon cinereus* taken near Raleigh, there were ten of the *erythronotus* color form and eight of the *cinereus*, not all of the red-backed form as the paragraph implies. Secondly under the Coral Snake records the last sentence should be omitted and the following records added,—Southern Pines, preserved specimen sent to State Museum in August, 1917;

Wilmington, freshly preserved specimen sent to State Museum in April, 1922.

Southern Toad (*Bufo terrestris*). Found common at Laurel Hill, Scotland Co., June 1 and 2, 1922. On June 2 a number were found breeding on the edge of a roadside pool, and the following facts noted. The unmated male toads at nine in the morning were screaming loudly on the edge of the pool, but had not entered the water, while at noon they were in the water and mated, but almost silent. Only one *Bufo fowleri* was noted here.

Southern Newt (*Notophthalmus viridescens vittatus*). Four were taken in the same pool as the toads (at Laurel Hill), all being typical specimens with the red spots and their black borders forming elongated black bordered spots or broken lines. There were plenty of other pools and also several millponds, but I didn't find any newts besides these.

Rattlesnake (*Crotalus horridus?*). I heard rather an interesting rattlesnake story at Laurel Hill to the effect that last summer a large rattler was caught in the county and taken alive to the county seat, Laurinburg, and there exhibited in a store window. The proud owner fed it on various living things and it gave birth to a number of young; one man told me thirteen, another said sixteen. The snake by the way had twenty-two rattles, which was the only evidence of size given me. Finally the owner, proud of the way in which the snake accounted for the animals placed in its cage, put an opossum (size not stated) in the box with the snake. The opossum immediately backed into one corner, "grinning," and so remained when the store was closed for the night. Next morning all the young rattlers had disappeared (inside the opossum) while the mother was lying dead in the box with her head eaten off.—C. S. Brimley, *Raleigh, N. C.*

A NOTE ON *BUFO MARINUS**

During the summer of 1922 I spent some time at Los Mochis, in Northern Sinaloa, Mexico. It was very interesting each evening to note the appearance of large toads under the electric lights. One evening, about the end of July while one of these toads was occupied in catching insects, a small terrier dog started to tease the amphibian. At first the toad only hopped in an effort to escape the barking dog, which did not attempt to bite. Soon the toad became tired and its hops were less frequent and not so long. The dog was urged on by the bystanders and finally snapped the toad while the latter was in mid-air, catching it just back of the foreleg. Although the dog's mouth was not in contact with the toad for more than an instant, he immediately lost all interest in the animal. Spitting and shaking his head, he gave all indications of having received something very distasteful in his mouth. He was offered some water but refused to drink and in about a minute's time showed signs of weakening and general paralysis. He sank to the ground with his legs spread out, writhing and whining with pain, and unable to recognize his master. During this time he was able to push himself along the ground, gradually becoming weaker and very rigid, with eyes greatly protruding and respiration and heart action exceedingly rapid. After twenty minutes he was somewhat quieter as if he was going to die. It was suggested that castor oil be given him in the hope that it might save his life. Accordingly his mouth was pried open, for every muscle was rigid, and about 50cc. of oil was poured down his throat. Ten minutes later he showed signs of improvement, although I do not know that the oil had anything to do with the change. Within another 15 minutes he was able to get upon his feet but was

*I cannot state absolutely that this particular toad was *B.marinus* (syn. *agua*) as I did not actually compare the example in question with a named specimen. But the size of the animal and examination of a specimen of *B.marinus* in the Museum of Vertebrate Zoology (University of California) leaves little or no doubt in my mind as to the identity.

very feeble and his hind quarters were still somewhat paralyzed. Presently he recognized his master and within an hour from the time he took his distasteful nip he was apparently quite normal again.

As a result of this incident I made some inquiries among the natives about this toad. Anyone who has tried to gain knowledge from the natives of Mexico will realize that they have a tendency to give their information in the form they think most desirable, whatever is told should be taken with "a grain of salt." However, it was universally stated that these toads were poisonous and that native dogs would not attack them, nor would the natives themselves have anything to do with them. They told many stories of different dogs which had played with these huge toads and died as a result, while those few that had lived were never again normal. It was also said that certain Indians in the mountains of eastern Sinaloa use these toads to poison their arrow tips. They accomplish this by placing hot pebbles in the toad's mouth, or by surrounding it with warm rocks. Thus stimulated the toad secretes a milky fluid in which the arrow tips are dipped.

Undoubtedly the poison in question is the secretion of the paratoid gland, which structure is greatly developed in this species. These glands are located laterally and just posterior to the shoulder blade. Likely the mouth of the dog, the mucous membrane of which offers an excellent surface for absorbing the secretion, came in direct contact with this gland. The dog in question had an extraordinary amount of vitality, and I do not doubt that another dog might have succumbed.—CLIFFORD T. DODDS, *Berkeley, Calif.*

THE RANGE OF *RANA GOLIATH*

Few recent discoveries have caused more universal interest than the discovery in 1906, at Efulen in the Cameroons, of this giant among Salientia.

Since its discovery it has not figured largely in the

literature but as occasion offered, by correspondence and by word of mouth, I have been trying to learn more of its distribution. Now my friend Rev. Geo. Schwab is back from West Africa and he believes that the following range may be considered definitive. The southern limit appears to be the Rio Benito in Spanish Guinea and the northern the Sanaga River in Central Cameroons while the eastern extension seems to be very limited. In fact a zone 150 miles wide measured from the coast would probably include nearly the whole species.

The frog is very shy and seldom leaves the deep water. Its thigh bones are used in divination so that specimens secured by the natives seldom are given up for preservation. A few are killed by the pigmies with bow and arrow but the greater number are found by the women when, during the dry season, they build dams across streams, then bail them dry and so secure fish and incidentally occasionally giant frogs. They are said to be rare everywhere and but a few are caught by the natives in any one season.—T. BARBOUR, *Cambridge, Mass.*

A SNAKE NEW TO THE FAUNA OF CHINA

In my Herpetology of Japan, 1907, p. 385 in speaking of the geographical distribution of *Psammodynastes pulverulentus* and discussing its probable way of dispersal into Formosa, I stated that, as it had not been recorded from the mainland of China as yet, it "would thus appear to be an exception to the rule that the Formosan snakes have reached that island from China. . . . With our present defective knowledge of the herpetology of China, such a conclusion would be too hasty, however. It is moreover a significant fact that this snake is at home in the eastern Himalayas, and in the mountains of Assam and Burma, where so many other Formosan species, also occurring in China, have their nearest relatives and probable origin. There is every reason to believe that

P. pulverulentus may yet be discovered in the mountains of southern and western China." It is therefore with great pleasure that I place on record a specimen recently received by the National Museum from A. de C. Sowerby, which he collected near Yen-ping Fu, in the province of Fukien, about 115 kilometers northwest of Fuchau. — LEONHARD STEJNEGER, *Washington, D. C.*

COASTAL RANGE OF YELLOW-LEGGED FROG IN CALIFORNIA

Rana boylii boylii is the common stream frog of the foothill districts of central California. In Grinnell and Camp's distributional list (Univ. Calif. Publ. Zool., 17, 1917, p. 146, fig. 5) there is no record for this species south of San Francisco Bay, in the coast region. It is of interest therefore to record material obtained by two Museum expeditions in recent years which extends the known range some distance to the south. On July 17, 1918, a number of specimens were obtained by Mr. Richard Hunt near springs in a cave at "The Pinnacles" in San Benito County. On July 21, 1919, two individuals were secured by the same collector in the creek at Abbott's ranch on Arroyo Seco, Monterey County, about 17 miles southwest of Soledad. It seems quite probable that the species will be found to occur along other streams in the central coast counties. Cope (Bull. U. S. Nat. Mus., 34, 1889, p. 434) lists a specimen from Santa Barbara under "Rana temporaria pretiosa" which may pertain to the species here under discussion.— TRACY I. STORER, *Berkeley, Calif.*

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